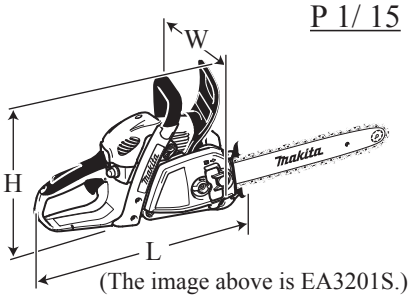
# TECHNICAL INFORMATION

**Model No.** ► EA3200S, EA3201S, EA3202S, EA3203S

**Description** ► Petrol Chain Saws



(The image above is EA3201S.)

| Dimensions: mm (") | | |
|---|---|---|
| Model | **EA3200S, EA3202S** | **EA3201S, EA3203S** |
| Length (L) | 405 (16) | |
| Width (W) | 250 (9-7/8) | 269 (10-5/8) |
| Height (H) | 273 (10-3/4) | |

## CONCEPT AND MAIN APPLICATIONS

Models EA3200S, EA3201S, EA3202S and EA3203S are entry class petrol chain saws equipped with 32cc 2-stroke engine, featuring:

- Easy start, On-off choke combination switch and Primer pump for providing higher maneuverability
- Compact and lightweight body for better handling
- Equipped with catalytic muffler to comply with all known exhaust emission regulations (for **EA3200S** and **EA3201S** only)

These products are available in the following variations.

| Model No. | Tool-less tension adjustment of saw chain | Catalytic muffler | Guide bar length: mm | Saw chain | |
|---|---|---|---|---|---|
| | | | | cutter type | gauge |
| EA3200S30A/ EA3202S30A | No | Yes/ No | 300 | 90SG-46E | 3/8" |
| EA3200S35A/ EA3202S35A | No | Yes/ No | 350 | 90SG-52E | 3/8" |
| EA3200S40B/ EA3202S40B | No | Yes/ No | 400 | 91VG-56E | 3/8" |
| EA3201S30A/ EA3203S30A | Yes | Yes/ No | 300 | 90SG-46E | 3/8" |
| EA3201S35A/ EA3203S35A | Yes | Yes/ No | 350 | 90SG-52E | 3/8" |
| EA3201S40B/ EA3203S40B | Yes | Yes/ No | 400 | 91VG-56E | 3/8" |

The models also includes the accessories listed below in "Standard equipment".

## ► Specification

| Specifications \ Model | | **EA3200S/ EA3201S** | **EA3202S/ EA3203S** |
|---|---|---|---|
| Engine | Type | 2-stroke | |
| | Displacement: $cm^3$ (cu.in.) | 32 (2.0) | |
| | Fuel | Mixed gasoline (Mixture ratio of 50:1 [JASO FC or ISO EGD] ) | |
| | Max. output: kW (PS) | 1.35 (1.9) at 10,000 rpm | |
| | Max. torque: N.m | 1.6 at 7,000 rpm | |
| Speed at no load: $min.^{-1}$ = rpm | | 12,800 | |
| In compliance with exhaust emission regulations; EPA Phase 2, EU Stage 2 | | Yes (Catalytic converter) | No |
| Fuel tank capacity: mL (US oz) | | 0.4 (13.5) | |
| Chain oil tank capacity: L (US oz) | | 0.28 (9.5) | |
| Carburetor | | Diaphragm | |
| Ignition type | | Digital CDI | |
| Starting system | Easy start (Spring-assisted recoil starter) | Yes | |
| | Decompression valve | No | |
| Primer pump | | Yes | |
| Clutch | | Yes | |
| Rotation limiter | | Yes | |
| Dry weight*: kg (lbs) | | 4.1/ 4.2 (9.0/ 9.3) | 4.0/ 4.1 (8.8/ 9.0) |

* without Guide bar, Saw chain

## ► Standard equipment

Guide bar cover ..... 1
Socket wrench ..... 1
Screwdriver ..... 1

**Note:** The standard equipment for the tool shown above may vary by country.

## ► Optional accessories

Saw chains
Guide bars (Sprocket nose type)
Chain oil
Engine oil

# Repair

**CAUTION: Repair the machine in accordance with "Instruction manual" or "Safety instructions".**

## [1] NECESSARY REPAIRING TOOLS

| Code No. | Description | Use for |
|---|---|---|
| 1R186 | T-type hexalobular wrench | removing/ assembling H.L. (Hexalobular) tapping screw |
| 1R090 | Round bar of copper ø10-180 | removing Flywheel |
| 1R366 | Feeler gauge set | adjusting a proper gap between Flywheel and Ignition coil |
| 1R223 | Torque wrench shaft 20-90N.m | removing/ assembling Hexalobular tapping screw |
| 1R254 | Torque wrench shaft 2-6N.m | |
| 1R220 | Ratchet head 9.5 | using with 1R223/ 1R254 when removing/ assembling Hexalobular socket head bolt |
| 1R222 | Socket adapter | |
| 134873-0 | Bit adapter ass'y | |
| 1R290 | Hexalobular socket head bit VT-27 (6.35mm) | |
| 1R372 | Crank shaft lock bolt M10 | locking Crank shaft |
| 1R396 | Clutch extractor | removing/ assembling Clutch |
| 1R070 | Tachometer for engine chain saw | Checking rpm of engine |
| 1R127 | Air density tester | Checking the sealing performance of Carburetor and Tank assembly |
| 1R181 | Ignition checker | checking ignition |
| 1R199 | Spring fixing jig | removing Tension spring 10 |

## [2] DISASSM|BLY/ ASSEMBLY

### [2]-1. Chain tensioner

DISASSEMBLING

(1) Remove Sprocket guard, Guide bar and Saw chain from machine.
(2) Remove Guide plate from Guide bar bolts of Engine housing complete carefully to prevent deformation. (**Fig. 1**)
(3) If necessary, turn the slotted head of Helical gear 18 clockwise until 3x10 Tapping screw is appeared. (**Fig. 2**)

**Note**: Tension slide can be moved back and forth by turning Helical gear 18.

(4) Remove 3x10 Tapping screw, and pull out Chain tenstioner set. (**Fig. 3**)

**Fig. 1**

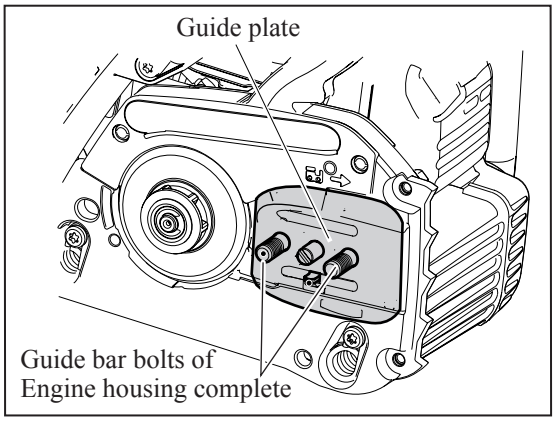



**Fig. 2**

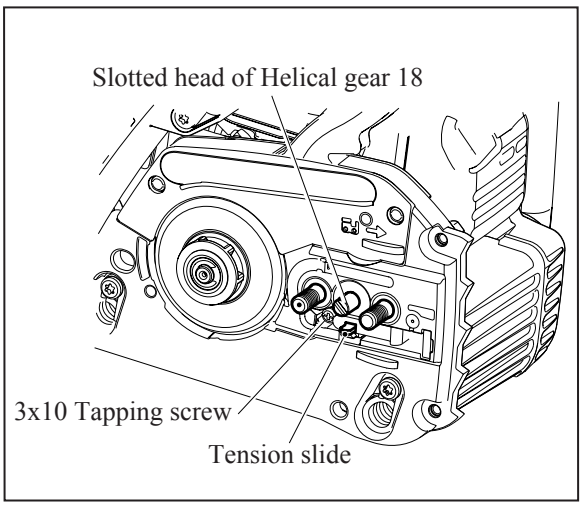
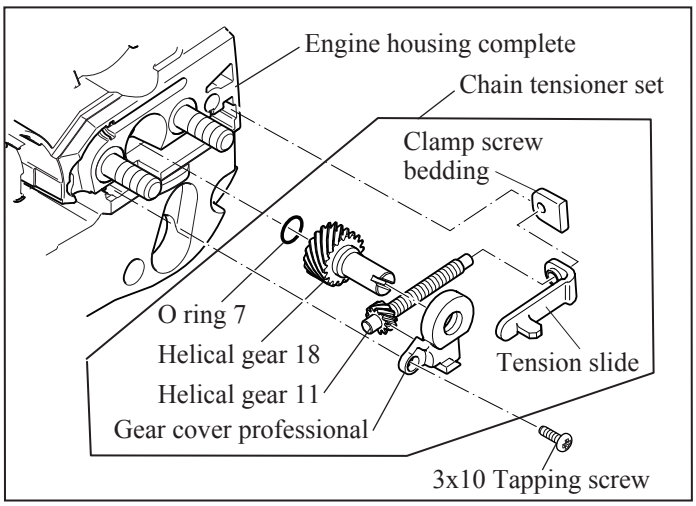



**Fig. 3**




ASSEMBLING

Assemble the components by reversing the disassembling procedure.
Be sure to apply Makita grease N No. 2 on the engaged teeth of Helical gear 18 and Helical gear 11.

# Repair

**[2] DISASSEMBLY/ ASSEMBLY**
**[2]-2. Clutch drum section**

DISASSEMBLING

(1) Remove Sprocket guard, Guide bar and Saw chain from machine.
(2) Insert Small-slotted screwdriver into the gap between Crank shaft and Retaining ring E type 6, and then twist Retaining ring E type 6 using the slotted blade. (**Fig. 4**)
(3) Remove Flat washer 8 and Retaining ring E type 6 from Crank shaft.
(4) Release chain brake by turn Hand guard toward Tubular handle to remove Clutch drum assemble.if chain brake works.
(5) Remove Clutch drum assembly. (**Fig. 5**)

**Fig. 4**

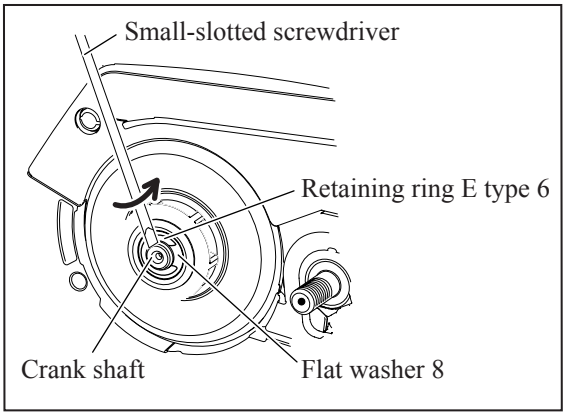
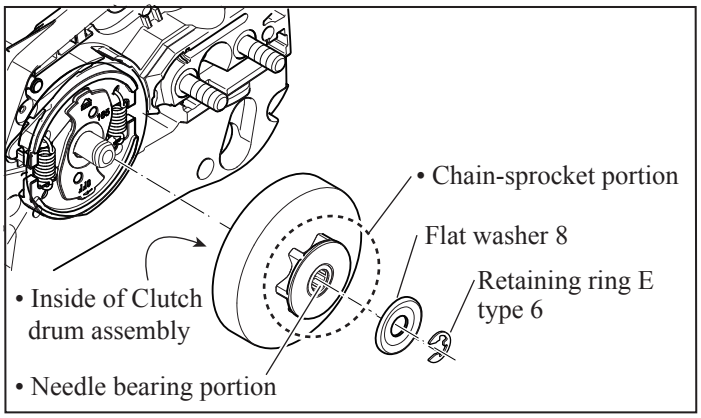



**Fig. 5**




ASSEMBLING

(1) Check that the following portions of Clutch drum assembly do not have damage/ wear. (**Fig. 5**)
- Inside
- Chain-sprocket portion
- Needle bearing portion

If there is damage/ wear on Clutch dram assembly, replace it to new one.
(2) Apply a little amount of Makita grease N No. 2 to the needle bearing portion of Clutch drum assembly.
(3) Set Clutch drum assembly, Flat washer 8 and Retaining ring E type 6 in place.
**Note**: Be sure to use the new Retaining ring E type 6.

# Repair

**[2] DISASSEMBLY/ ASSEMBLY**

**[2]-3. Chain brake section**

**Note**: Wear gloves for safety.

DISASSEMBLING

(1) Remove Sprocket guard, Guide bar and Saw chain from machine.
(2) Remove Clutch drum assembly. (**Figs. 4 and 5**)
(3) Turn Hand guard toward Chain bar top side to operate Chain brake.
**Note**: This allows the tension of Brake guard to be relaxed.
(4) Remove two 3x10 Tapping screws and Brake cover from Engine housing complete. (**Fig. 6**)
(5) Lift the round portion of Brake band in the direction of the arrow. (**Fig. 7**) And then, remove the hooked end portion of Brake band. Brake band is removed from brake mechanism.
(6) Hold Machine so as not to be moved.
(7) Pull and remove Tension spring 10 with 1R199 in the direction of the arrow drawn in **Fig. 8**.

**Fig. 6**

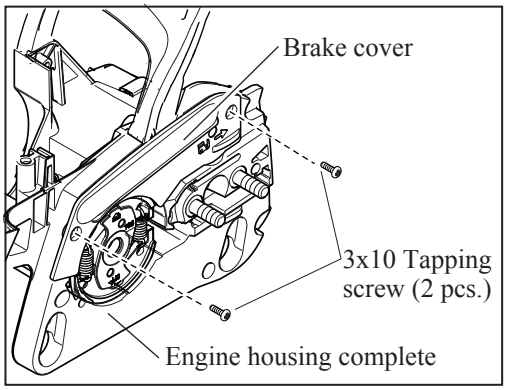
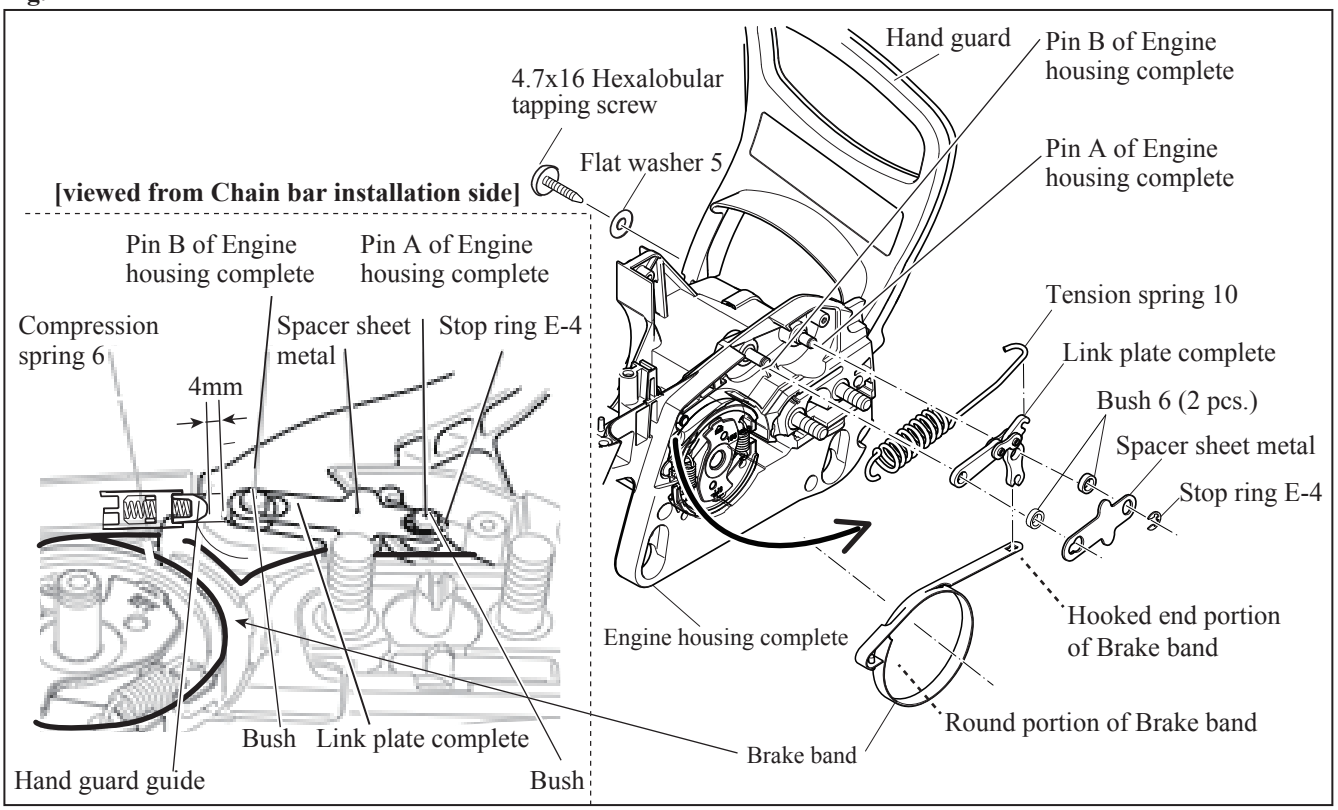
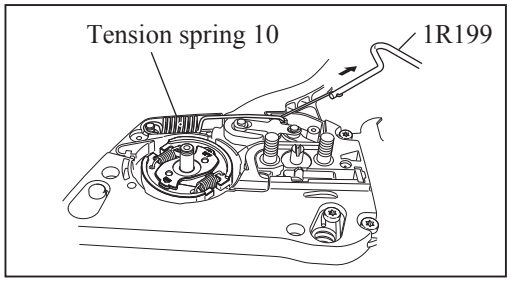



**Fig. 7**




(8) Remove Starter complete. Refer to **[2]-7** "Recoil starter section".
(9) Remove 4.7x16 Hexalobular tapping screw and Flat washer 5 from Starter complete installation side on Hand guard. (**Fig. 7**)
(10) Remove Stop ring E-4 from Pin A of Engine housing complete. (**Fig. 7**)
(11) Lift up the Pin A side of Spacer sheet metal, and then lower it a little to remove the Pin B side of Spacer sheet metal from Pin B. Remove Spacer sheet metal from Engine housing complete completely.
(12) Remove Bush 6 from Pin A/ B (one each). (**Fig. 7**)
(13) Cover Engine housing complete with cloths, and hold them in Vise.
(14) Remove Link plate complete from Engine housing complete in the horizontal direction of Pin A/ B. (**Fig. 7**)
(15) Remove Muffler section. Refer to **[2]-4** "Muffler section".
(16) Remove the recoil starter side end of Hand guard in the direction of Muffler installation side, then move the chain bar side end of Hand guard back and forth lightly to remove from Pin B of Engine housing complete.

**Fig. 8**




ASSEMBLING

Assemble the components by reversing the disassembling procedure.

**Note**: • Be sure to apply Makita grease N No. 2 on the engaged teeth of Helical gear 18 and Helical gear 11.
• Make sure that Hand guard guide is not unhooked. Push it back into position that is 4mm distance from Pin B using Screwdriver so that Hand guard guide and Hand guard can be set in place.
• Be sure to use the new Stop ring E-4.

# Repair

**[2] DISASSEMBLY/ ASSEMBLY**
**[2]-4. Muffler section**

**Note**: • Wear gloves for safety.
• Be careful that Muffler stays very hot for a while after running the engine.

DISASSEMBLING

(1) Remove Sprocket guard, Guide bar and Saw chain from machine.
(2) Unscrew M5x40 Hexalobular socket head bolt and two M5x16 Hexalobular socket head bolts as drawn in **Fig. 9**, and then disassemble Muffler section as drawn in **Fig. 10**.

**Fig. 9**

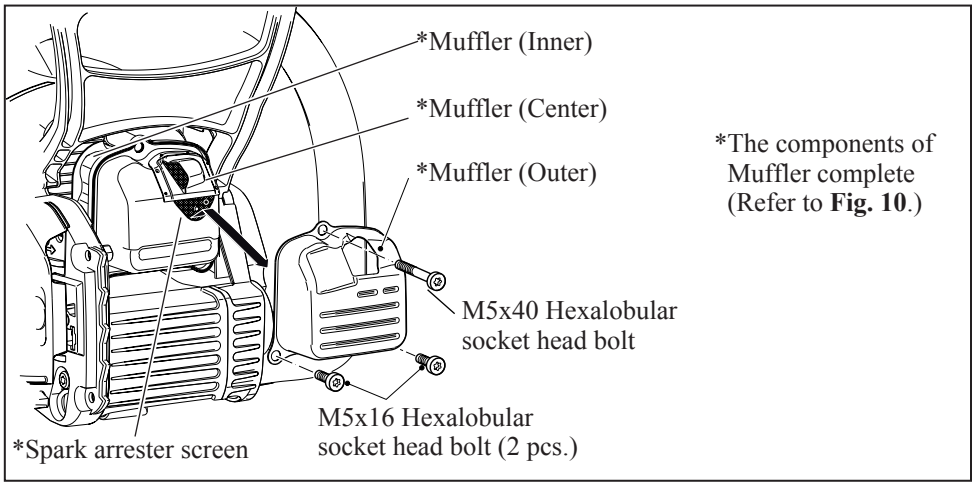
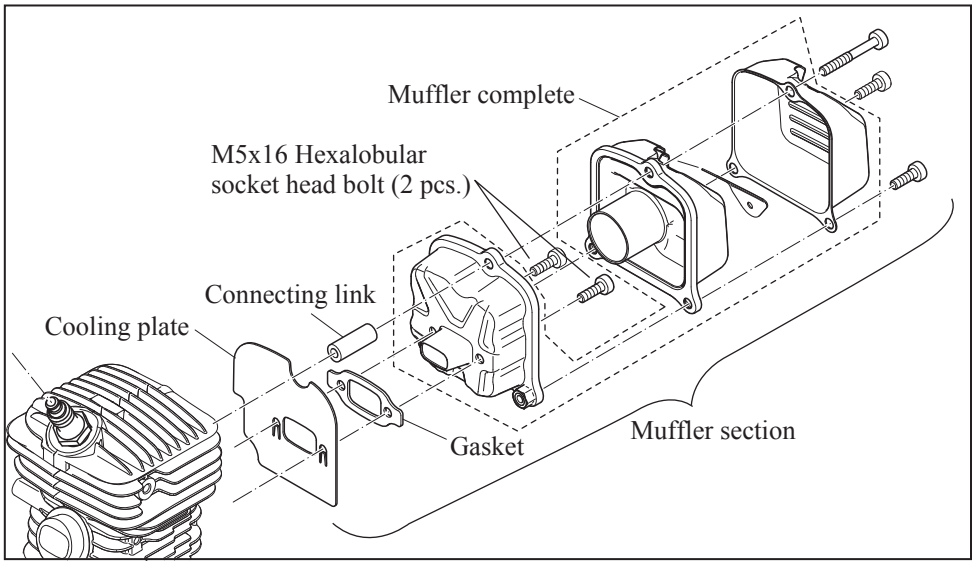

*Muffler (Inner)
*Muffler (Center)
*Muffler (Outer)
*The components of Muffler complete (Refer to **Fig. 10**.)
M5x40 Hexalobular socket head bolt
M5x16 Hexalobular socket head bolt (2 pcs.)
*Spark arrester screen

**Fig. 10**




ASSEMBLING

Assemble the components of Muffler section by reversing the disassembling procedure.
Be careful to each direction.

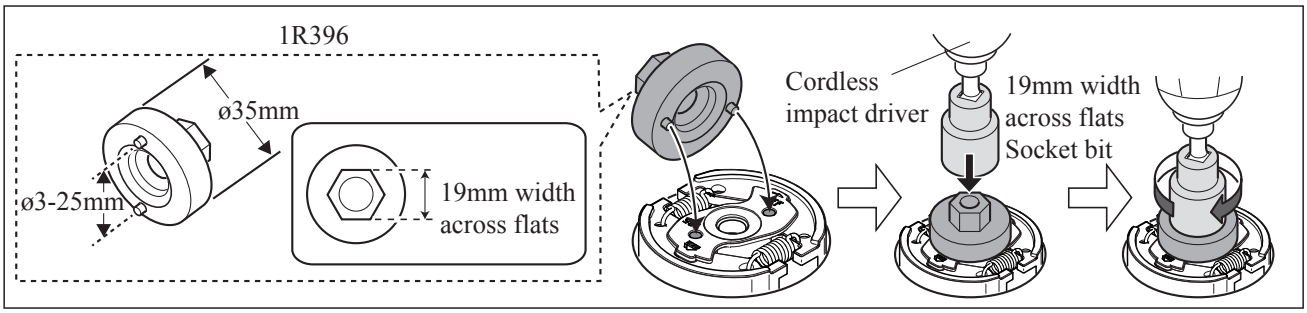
# Repair

**[2] DISASSEMBLY/ ASSEMBLY**
**[2]-5. Clutch section**

DISASSEMBLING

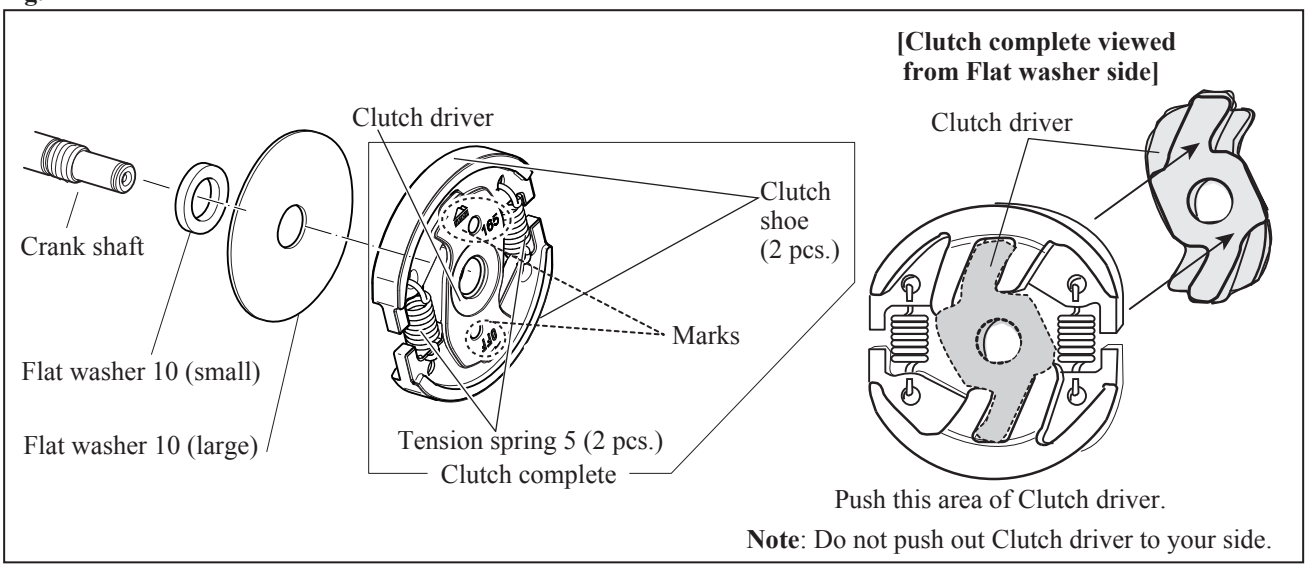
(1) Remove Sprocket guard, Guide bar and Saw chain from machine.
(2) Pull Hand guard toward Tubular handle to release Chain brake. Then, remove "Clutch drum assembly". Refer to **[2]-2**.
(3) Set 1R396 on Clutch and turn it clockwise using Cordless impact driver with 19mm Socket bit. (**Fig. 11**)
**Note**: In most cases, it can be loosen by Cordless impact driver without removing Spark plug as Crank shaft is locked with compression force in Cylinder. If not, remove Spark plug and set 1R372 in the hole for Spark plug after moving Piston to the lower dead point (visible through the exhaust opening). And then, turn 1R396 by hand tool because use of Cordless impact driver may cause Crank shaft lock bolt to hit and possibly damage the top surface of Piston.

**Fig. 11**




(4) Remove Flat washer 10 (large) and Flat washer 10 (small). (**Fig. 12**)
(5) Push out Clutch driver carefully so as not to pinch your finger. It is tightly fit in between two Clutch shoes with strong spring reaction force worked by two Tension springs 5. (**Fig. 12**)

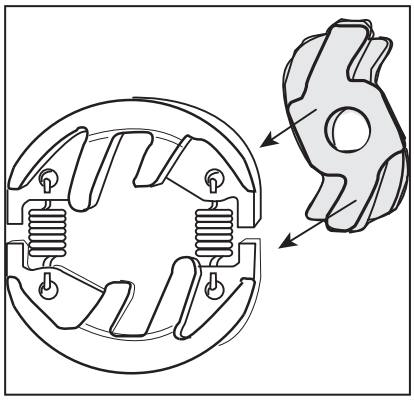
**Fig. 12**




ASSEMBLING

**Note**: Be careful to each direction of the components. Refer to **Fig. 12**.
(1) Assemble two Tension springs 5 to two Clutch shoes. (**Fig. 13**)
Be careful to the hooking direction of Tension springs 5. When one of Tension spring 5 has a damage, replace two Tension springs 5 with the new at the same time. Do not replace the damaged one only. (**Fig. 13**)
Fit one of Clutch shoe to Clutch driver, and then hook the other Clutch shoe to Clutch driver. (**Fig. 13**)
Push Clutch driver until it stops to assemble Clutch complete securely.
(2) Set Flat washers 10 (large, small) and Clutch complete in place by reversing the disassembling procedure.
**Note**: • The fastening torque of Clutch complete has to be 35 ± 2.5 N·m.
When Clutch complete is fastened to Crank shaft, remove Starter complete in advance to prevent Ratchets from being damaged.
• Face the marks on Clutch driver to the opposite of Large flat washer 10. (**Fig. 12**) Face the marks to Clutch drum assembly side. (**Fig. 5**)

**Fig. 13**



# Repair

## [2] DISASSEMBLY/ ASSEMBLY

### [2]-6. Oil pump section

Refer to **Figs. 14 and 15** for the mechanism of Oil pump section. Oil pump to supply Chain oil runs by Pump drive on Crank shaft. The gear teeth of Pump drive are engaged with those of Oil pump, and therefore, Chain oil is supplied to Chain when Engine runs. The fluid amount of Chain oil can be adjusted by turning Adjusting screw as follows:
clockwise = increase
counterclockwise = decrease

DISASSEMBLING

(1) Remove Clutch drum section and Clutch section. Refer to **[2]-2 "Clutch drum section" and [2]-5 "Clutch section"**.
(2) Remove Tension spring 10. Refer to **[2]-3 "Chain brake section"**.
(3) Remove Pump drive from Crank shaft while sliding Pump drive back and forth slowly to disengage with Gear teeth of Oil pump adjustment set.
(4) Remove Oil suction line complete from Oil pump complete.
(5) Remove Oil pump complete from Engine housing complete by unscrewing 4.7x16 Hexalobular tapping screw.
(6) Oil suction line complete is in Engine housing complete with Oil pump complete and Chain oil tank connected. And therefore, pull Oil suction line complete carefully out of Engine housing complete, then remove Oil suction line complete from Oil pump complete as drawn in **Fig. 15**.

ASSEMBLING

While pushing Adjusting screw against its compression spring reaction force, turn the screw counterclockwise until the pin ends are fit into two slits of Oil pump body. If this way is difficult, push Piston slightly in the direction of Body.
**Note**: When set Oil pump complete in place, turn Adjusting screw counterclockwise to the full.

**Fig. 14**

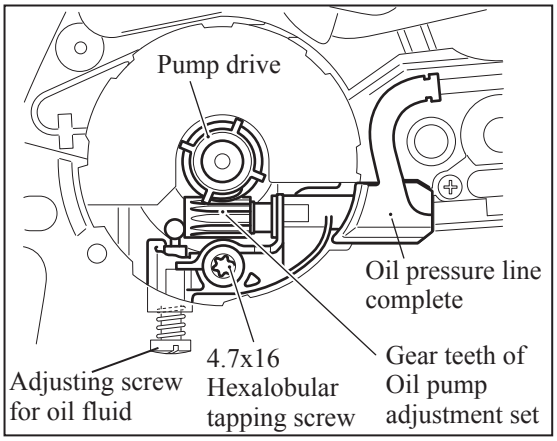
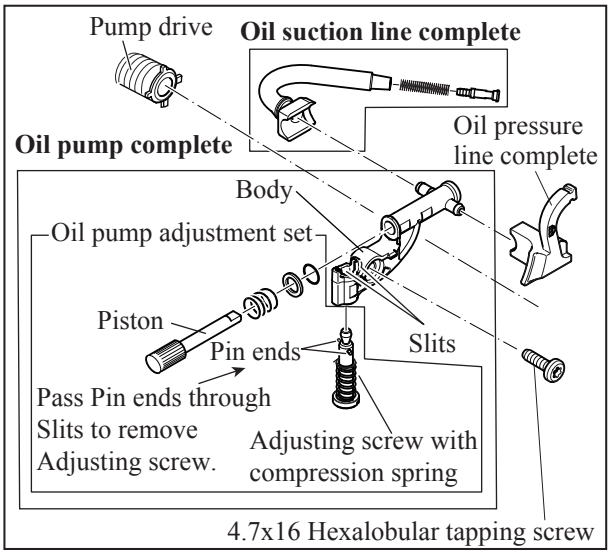

Pump drive
Oil pressure line complete
Adjusting screw for oil fluid
4.7x16 Hexalobular tapping screw
Gear teeth of Oil pump adjustment set

**Fig. 15**



# Repair

**[2] DISASSEMBLY/ ASSEMBLY**

**[2]-7. Recoil starter section**

DISASSEMBLING

Refer to **Figs. 16 and 17** for the mechanism of Recoil starter section.

(1) Remove three 5.5x16 Hexalobular tapping screws and Housing of Starter complete. (**Fig. 16**)

(2) Remove Air guide plate. and then loosen the force of Rewind spring as follows:
After making the slack of rope between Starter grip and Reel, put the slack into the groove of Reel and pull the starter grip lightly.

**Note**: Be sure to loosen the spring force before the step (3).

(3) Remove 5x12 Tapping screw, and then separate Cam plate and Torsion spring 20 from the center pin of Housing.

(4) Remove Reel from the center pin of Housing.

(5) Remove Rewind spring set from Housing by rotating Housing carefully.

**Note**: Rewind spring may pop out of Housing, and therefore, wear goggles for eye protection and gloves.
If Rewind spring popped out, reset it in Spring cassette.
Refer to "Rewind spring set" in **Fig. 17**.

**Fig. 16**

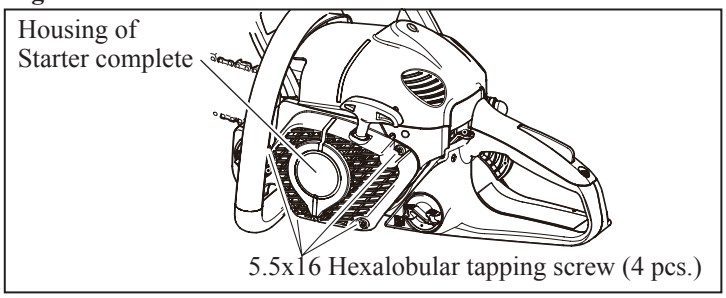
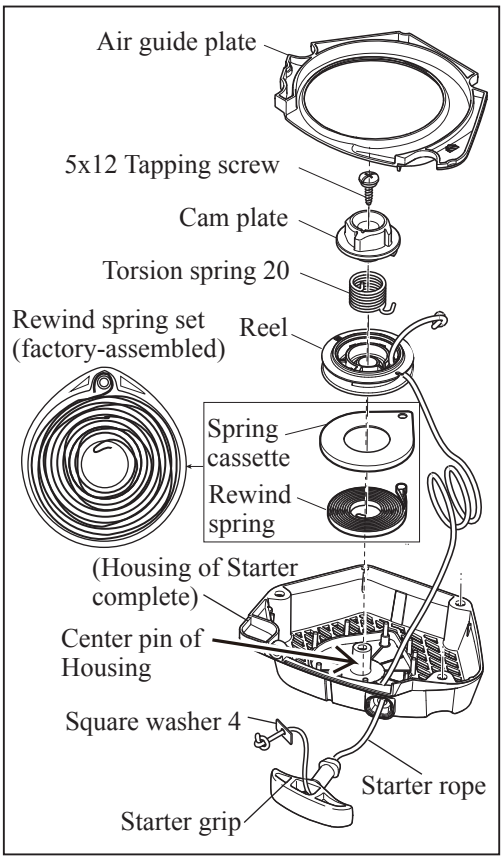



**Fig. 17** (The components of Starter complete)




**[2]-8. Flywheel**

DISASSEMBLING

(1) Remove Sprocket guard, Guide bar and Saw chain from the machine.

(2) Remove "Recoil starter section". See **[2]-7 "Recoil starter section".**

(3) Remove Spark plug and set 1R372 into the hole for Spark plug to prevent Crank shaft from being turned together with M8x1 Hex nut in the next step.

(4) Remove M8x1 Hex nut by turning it counterclockwise with Socket wrench, and then remove Spring washer 8. (**Fig. 18**)

(5) While holding the machine by hand or securing it on workbench with soft cloths seated on, tap Crank shaft end with 1R090. Flywheel is removed from the taper portion of Crank shaft by the shock. (**Fig. 19**)

**Fig. 18**

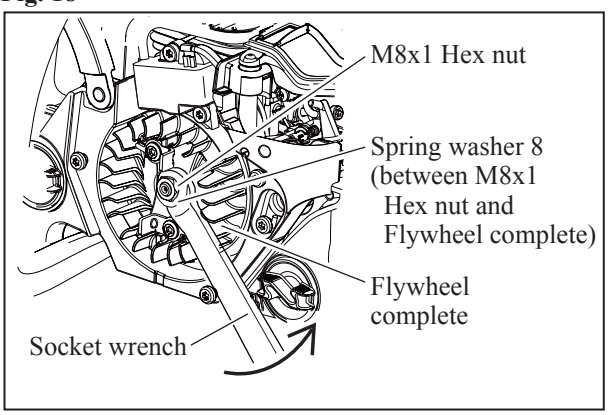
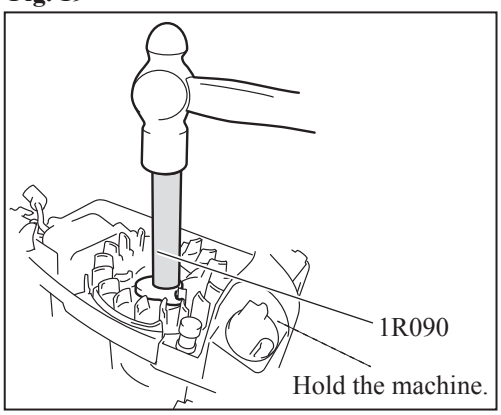



**Fig. 19**




ASSEMBLING

Set Flywheel to the taper of Crank shaft, and place Spring washer 8. Then, tighten M8x1 Hex nut to fastening torque 20 ± 5 N·m.

**Note**: The taper portion of Crankshaft must always be degreased before assembly.

# Repair

**[2] DISASSEMBLY/ ASSEMBLY**
**[2]-9. Ignition coil**

DISASSEMBLING

(1) Remove Sprocket guard, Guide bar and Saw chain from the machine.
(2) Remove "Recoil starter section". See **[2]-7.**
(3) Remove Flag terminal on one of cable end from Ignition coil.
**Note**: The other cable end cannot be removed from Ignition coil because they are integrated as a Cable harness.
(4) Remove two M5x20 Hexalobular socket head bolts. (**Fig. 20**) Ignition coil with Cable harness is removed from Flywheel. (**Fig. 21**)
**Note**: Do not lose two Isolating washers between Cylinder and Ignition coil. (**Fig. 21**)

**Fig. 20**

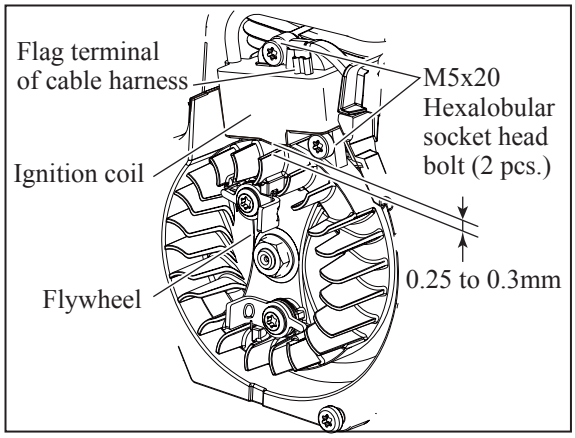
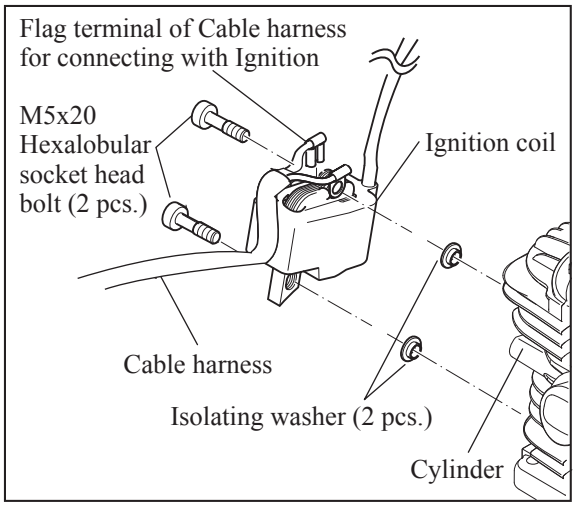



**Fig. 21**


Flag terminal of Cable harness for connecting with Ignition
M5x20 Hexalobular socket head bolt (2 pcs.)
Ignition coil
Cable harness
Isolating washer (2 pcs.)
Cylinder

ASSEMBLING

Refer to **Figs. 20 and 21.**
(1) Insert two Isolating washers into two seated holes of Cylinder.
(2) Pretighten Ignition coil in place by tightening two M5x20 Hexalobular socket head bolts through Isolating washers.
(3) Insert 1R366 between Ignition coil and Flywheel and adjust the clearance of 0.25 to 0.3mm as follows:
• Once unscrewing two M5x20 Hexalobular socket head bolts, Push Ignition coil toward Flywheel carefully and check the clearance. If the above clearance is obtained, tighten the bolts to fastening torque 5 ± 0.5 N·m.
(4) Connect Flag terminal of Cable harness to Ignition coil.

**[2]-10. Air filter, Carburetor, Intermediate flange**

DISASSEMBLING

**Note**: Drain Fuel tank before disassembling Carburetor.
See **Fig. 22**. (1) Remove Hood.
(2) Turn Choke lever to the position of "STOP".
(3) Remove two M4x40 Hexalobular socket head bolt on Intake manifold.
(4) Remove Air filter cover, Air filter, and Intake manifold.
(5) Remove one end of Tube 3-70 and one end of Tube 2.5-72 from Carburetor. (**Fig. 23**)
**Note**: Gasoline is left in Tube 3-70, and therefore, clean the gasoline with a cloth.
(6) Remove Carburetor from Throttle linkage.
**Note**: When setting Carburetor in place, hook Throttle linkage to the hole of Lever-throttle (designated by Black arrow in **Fig. 22)**.

**Fig. 22**

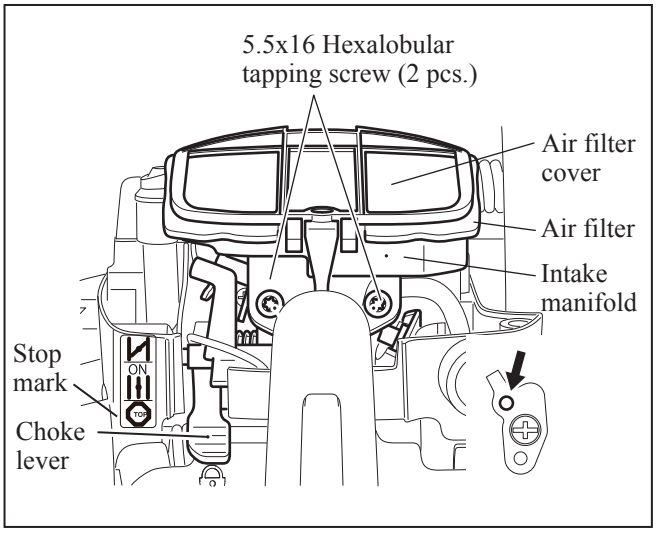
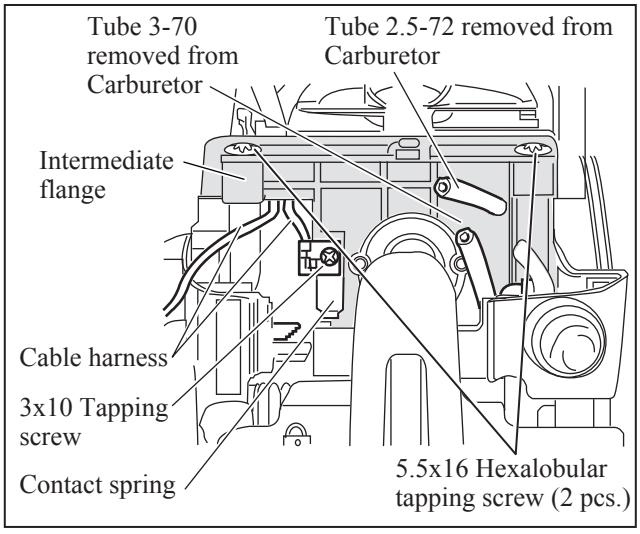



**Fig. 23**



# Repair

**[2] DISASSEMBLY/ ASSEMBLY**
**[2]-10. Air filter, Carburetor, Intermediate flange (cont.)**

To remove Intermediate flange:
(1) Remove Choke lever from Engine housing complete (as drawn in **Fig. 25**), Tubular handle, and Spark plug. Remove Air filter cover, Air filter, and Intake manifold.
(2) Remove 3x10 Tapping screw that fastens Contact spring and Cable harness to Intermediate flange. (**Fig. 23**)
(3) Remove four 5x40 Hexalobular tapping screws on Crank case underside located on the bottom of the machine. (**Fig. 24**)
(4) Turn Flywheel carefully so as not to touch it with Ignition coil.
(5) Remove the assembled part of Cylinder, Intermediate flange, and Ignition coil from the machine by pulling them. (**Fig. 25**)
**Note**: Replace Crank case sealing with new one before reassembling the assembled part of Cylinder, Intermediate flange, and Ignition coil to Crank case underside with four 5x40 Hexalobular tapping screws.

ASSEMBLING

(1) Move Piston to the upper dead point. While holding the position of Piston parallel to Piston pin 8, insert Piston into Cylinder as drawn in **Fig. 25**.
**Note**: Supply 2stroke oil to Piston and the inside of Cylinder in advance.

**Fig. 24**

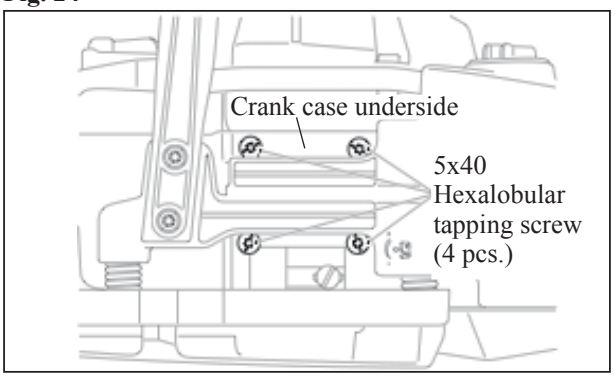



**Fig. 25**

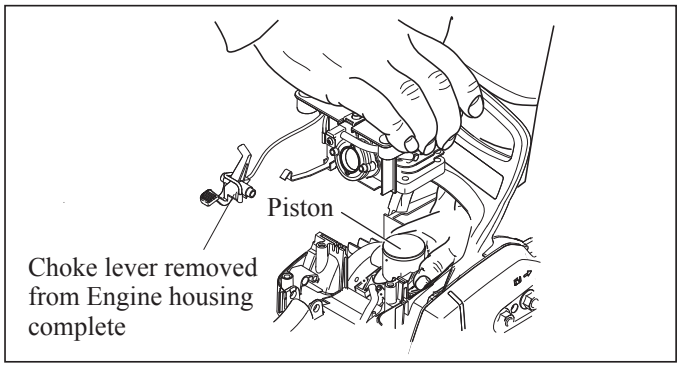
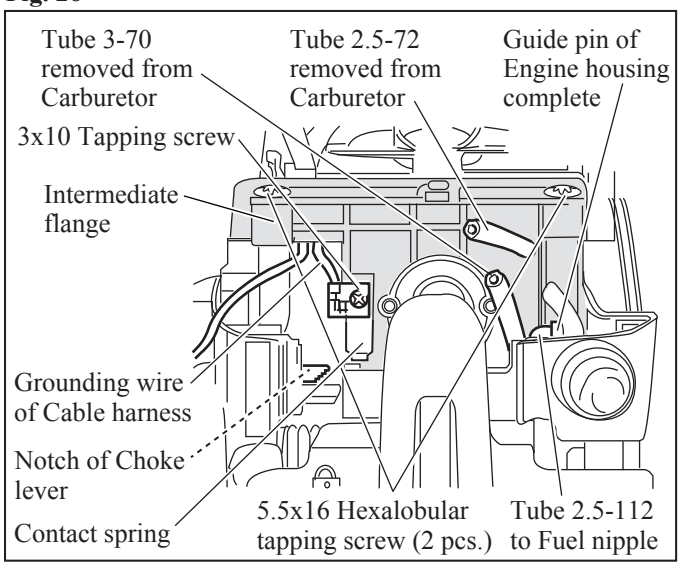


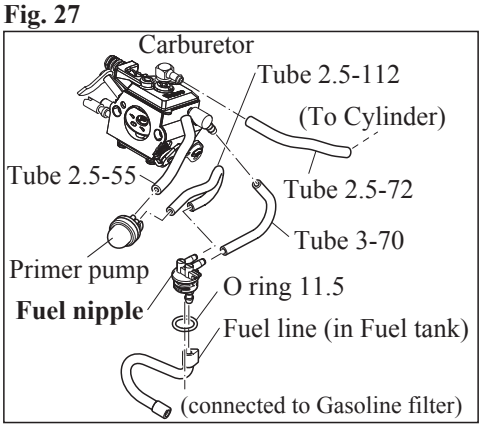

**Fig. 26**




(2) Check the following points.
- Intermediate flange is inserted into the groove on Engine housing complete.
- When Cylinder comes into Engine housing complete, Pulse tube end and Red tube end are placed on the position to connect with Carburetor. (**Fig. 26**)
- Before fastening Cylinder to Crank case underside, the wire end of Cable harness is put in the notch of Choke lever. (**Figs. 26 and 25**)
- Tube 2.5-112 is routed behind Guide pin of Engine housing complete to prevent the Tube from being attached to Carburetor. (**Fig. 26**)

(3) After connecting Choke lever (**Fig. 25**) and Ignition coil with Cable harness (**Fig. 21**), fasten Contact spring and the grounding wire end of Cable harness to Intermediate flange with 3x10 Tapping screw. (**Fig. 26**)
(4) Tighten four 5x40 Hexalobular tapping screws manually in a criss-cross pattern, and then tighten them to 10 ± 0.5 N·m properly.
(5) Check that Ring spring 8 is put between Cylinder and Intake hose properly.
**Note**: Before setting Carburetor in place, be sure to check that Flange ring is mounted on Intermediate flange horizontally.
(6) Connect the ends of Tube 2.5-72 and Tube 3-70 (**Fig. 27**) to each pipe-end of Carburetor. (**Fig. 26**)
(7) Assemble Intake manifold, Air filter, and Air filter cover by reversing the disassembling procedure. Fastening torque for each M4x40 Hexalobular socket head bolt has to be 3 ± 0.5 N·m. (**Fig. 23**)
**Important**:
When assembling Fuel suction Tube 3-70 to Fuel nipple, make sure the insertion is perfect. (**Fig .27**)

**Fig. 27**



# Repair

**[2] DISASSEMBLY/ ASSEMBLY**

**[2]-10. Air filter, Carburetor, Intermediate flange (cont.)**

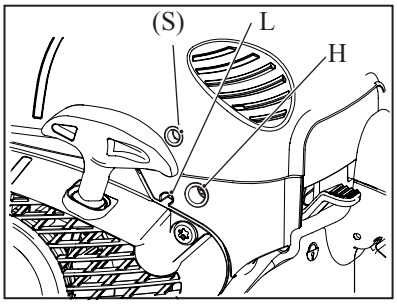
Needle adjustment

See **Figs. 28 and 29** for the positions of Needle-idle (L) and Needle-high speed (H).
Carburetor has two different specifications (Walbro-made and ZAMA-made).
After tightening each Needle to the full, loosen them as listed below.

| | Walbro | ZAMA |
|---|---|---|
| L-needle | 1-1/2 | 1-1/4 |
| H-needle | 4-1/4 | 2 |

**Note**: Adjust the rpm from the above setting positions with 1R070.

**Fig. 28**



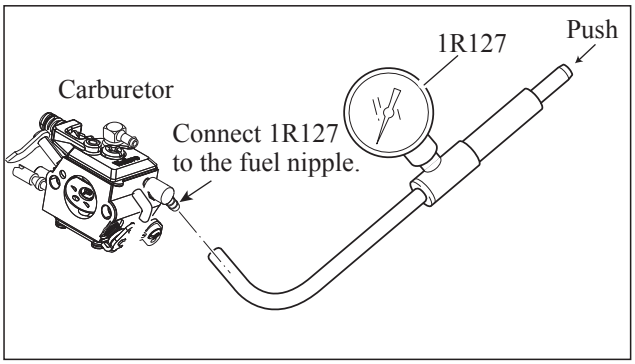

Pressure test

(1) Connect 1R127 to Carburetor. (**Fig. 29**)
(2) Push up the air pressure until the pressure gauge indicates 0.05 Mpa.
(3) The carburetor is in order if the air pressure can be kept for 10 seconds.

**Note**: If the air pressure drops, check the following conditions.

- Valve-inlet needle: if necessary, Spring, Lever-metering, Pin-metering lever, and Plug-welch have to be replaced together. (**Fig. 30**)
- Dirt/ deposits on the top of Valve-inlet needle: clean it.
- Gasket pump and Diaphragm-pump: replace them with the new ones.

**Fig. 29**




General check

- Inlet screen should be clean.
- Pulse hole should be clean.

Check around Valve-inlet needle and Lever-metering

Refer to **Figs. 30** and **31**.
Check that the tip of Valve-inlet needle is not worn.
Replace it the new one if it looks worn.
Check that Lever-metering is not worn and it is assembled properly as drawn in **Fig**. **31**.

**Note**: Low position of Control lever causes;

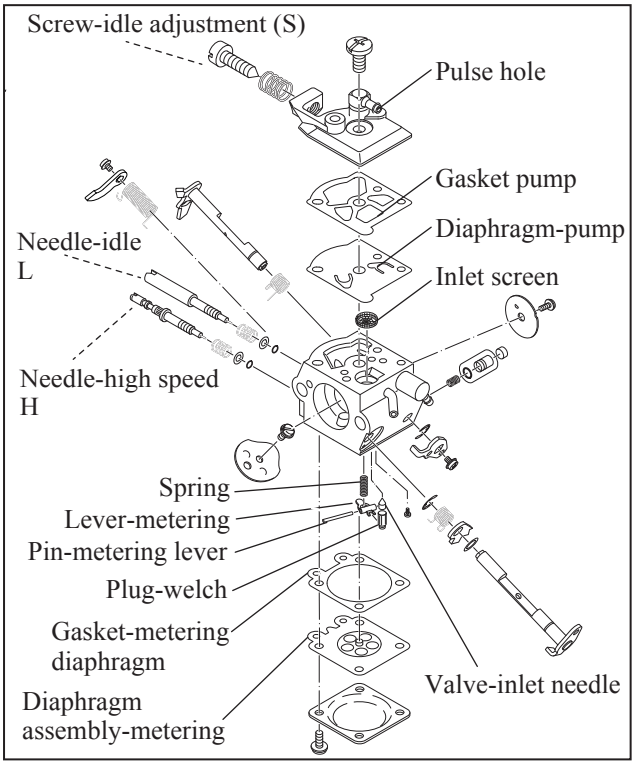
- Insufficient fuel circulation
- No maximum power

High position of Control lever causes;

- Carburetor flooding
- Starting problems
- Poor idling
- Poor acceleration

If necessary, reassemble them properly / replace them with the new ones.

**Fig. 30**




Check Diaphragm-pump

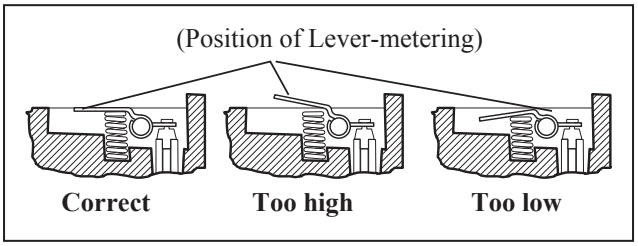
- When Diaphragm-pump is dented, torn, or creased,
- When the valve flaps of Diaphragm-pump are bent,

replace Diaphragm-pump and Gasket-pump with new ones.

Check Diaphragm assembly-metering

- (i) When Diaphragm assembly-metering is dented, hardened, or torn,
  (ii) If there is a visible wear on the button of Diaphragm assembly-metering
- If Diaphragm assembly-metering lacks elasticity, replace Diaphragm assembly-metering and Gasket-metering diaphragm with new ones.

**Fig. 31**



# Repair

**[2] DISASSEMBLY/ ASSEMBLY**

**[2]-11. Tank assembly**

DISASSEMBLY

Unscrew 5.5x16 Hexalobular tapping screw and pull Grip shell half slightly up and toward the screw hole side. (**Fig. 32**)

**Note**: When disassembling Throttle lever:

(1) Remove Sprocket guard, then remove two Compression springs 12 and four 5.5x16 Hexalobular tapping screws on A and B sides. (**Fig. 33**)

(2) Remove Starter complete, then remove Compression spring 12 and two 5.5x16 Hexalobular tapping screws on C side. (**Fig. 33**)

(3) Remove Hood, then remove Compression spring 12, Cup washer 6, M5x16 Hexalobular socket head bolt, and 5.5x16 Hexalobular tapping screw on D side. (**Fig. 33**)

(4) Remove four 5.5x16 Hexalobular tapping screws and Tubular handle. (**Fig. 34**)

(5) Pull the sides of the grip portion of Tank assembly toward outside slightly and swing up Throttle lever to remove Throttle section from Tank assembly. (**Fig. 35**)

**Note**: Be careful not to pull Tubes.

**Fig. 32**

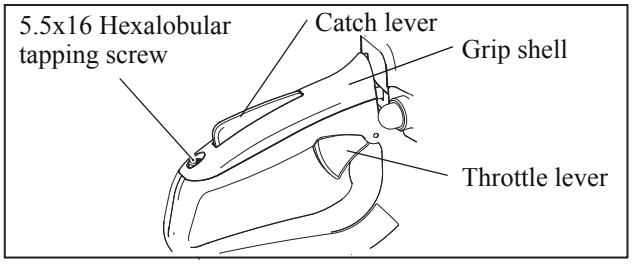
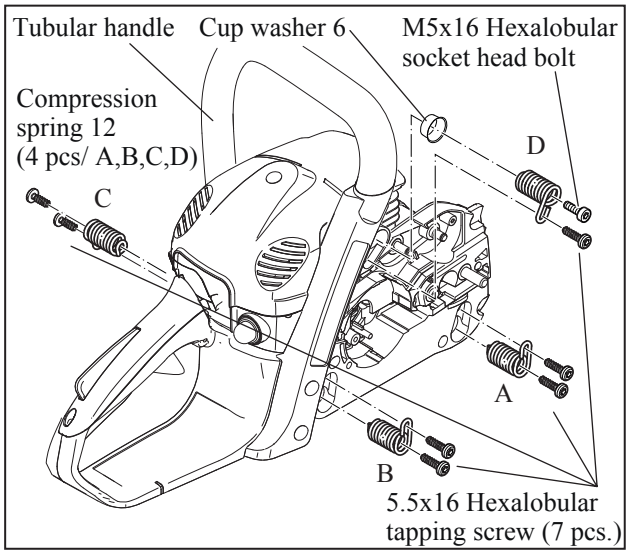



**Fig. 33**




ASSEMBLY

(1) Place Torsion spring 10 on Throttle lever, then turn Throttle lever 180° and set them in place on the grip portion of Tank assembly.

(2) Set Catch lever to the hinge position of Tank assembly. (**Fig. 35**)

**Note**: Torsion spring 10 has to be hooked with Throttle lever as drawn in **Fig. 36**.

**Fig. 34**

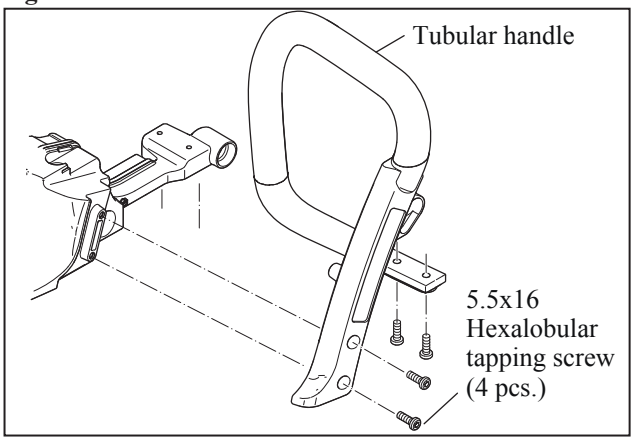



**Fig. 35**

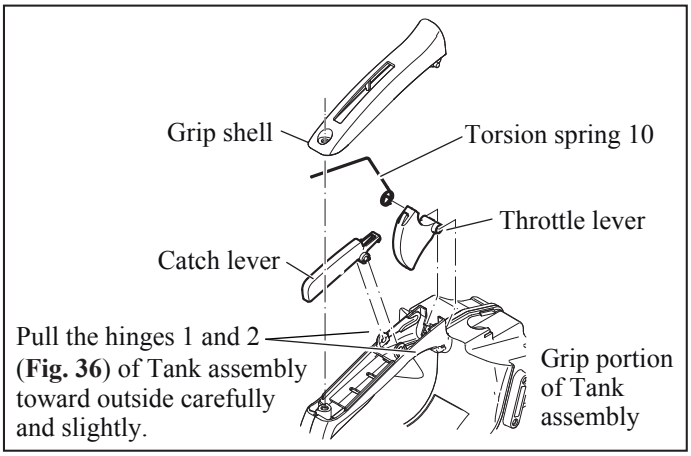
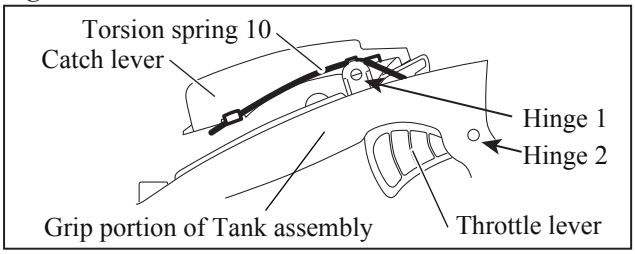

Grip shell
Torsion spring 10
Throttle lever
Catch lever
Pull the hinges 1 and 2 (**Fig. 36**) of Tank assembly toward outside carefully and slightly.
Grip portion of Tank assembly

**Fig. 36**




**[2]-12. Compression spring 12**

DISASSEMBLING

See **Fig. 33** and the explanation**.**

ASSEMBLING

Assemble four Compression springs 12 by reversing the disassembling procedure.

**Note**: Be sure to set Cup washer 6 between Tubular handle and Compression spring 12 as drawn in D side in **Fig. 33**, and then screw M5x16 Hexalobular socket head bolt to Cylinder 38.

# Repair

**[2] DISASSEMBLY/ ASSEMBLY**

**[2]-13. Fuel tank**

DISASSEMBLY

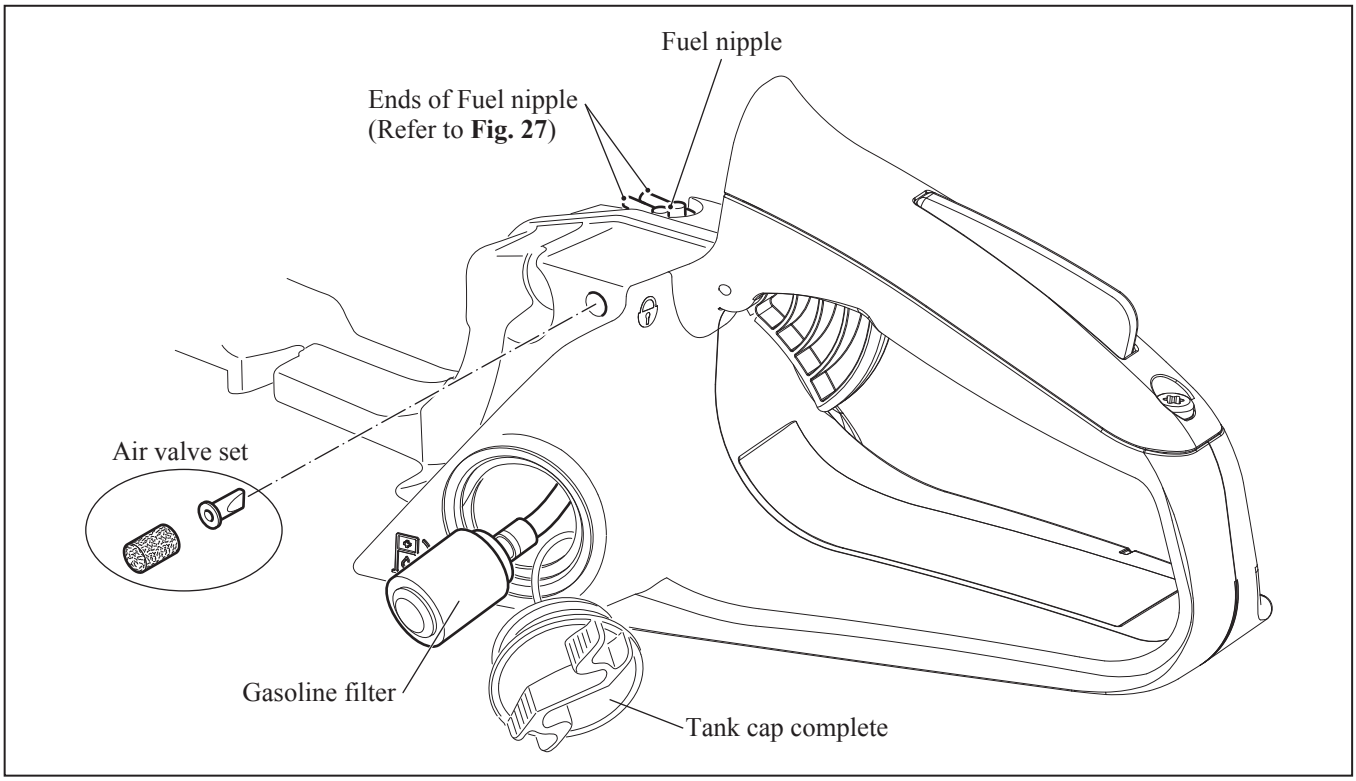
(1) Referring to "DISASSEMBLY of **[2]-11. Tank assembly**", disassemble the machine as drawn in **Figs. 34** and **33**.
(2) Using long-nose pliers, carefully pull out the one end of Fuel line from Fuel nipple. (Refer to **Figs 37** and **28**)

ASSEMBLY

**Note**: Connect the one end of Fuel nipple to 1R127 (Refer to **Fig. 29**), and fill the other of Fuel nipple.
Fasten Tank cap complete to Fuel Tank. Then, adjust the pressure value to 0.03MPa.
When the pressure value is descent, check the following parts:
• Air valve set • Ends of Fuel nipple • Intake of Fuel nipple • Gasoline filter
• O ring 11.5 on Fuel nipple • O ring 29.5 of Tank cap complete
When the pressure is ascent, replace Air valve set with the new one.
**Important**: Supply Soap liquid onto the suspicious surface of Fuel leakage during the pressure test.

After the above steps, reverse the disassembling procedure of "DISASSEMBLY of **[2]-11** Tank assembly".

**Fig. 37**




**[2]-14. How to remove Gasoline filter/ Fuel line**

• Pick up Gasoline filter with a bent wire carefully out of Tank. (**Fig. 37**)
Do not use Pliers because the tips may scratch Fuel line.
Do not pull Gasoline filter/ Fuel line by force without care because Fuel line may be removed from the intake of Fuel nipple inside Tank.
• Turn Fuel nipple slightly counterclockwise and then remove it from Tank assembly with small-slotted screwdriver carefully.
**Note**: Do not lever Nipple at the ends on the top. They may be broken off.

# Repair

**[2] DISASSEMBLY/ ASSEMBLY**
**[2]-15. Cylinder, Piston**

DISASSEMBLY

(1) Remove "Air filter, Carburetor, and Intermediate flange" as mentioned in **[2]-10.** (**Figs. 22, 23, 24, and 25**)
(2) Piston set can be separated from Crank shaft by removing Ring spring 8 from Piston with Long-nose pliers. (**Fig. 38**)

ASSEMBLY

**Note**: Supply 2-stroke engine oil to Piston and the inside of Cylinder in advance.
**Important**: See **Figs. 38** and **39**.

- Set Piston in place with the arrow marking faced to Muffler side.
- Face the gap of Piston ring 38 to **Carburetor side**. Make sure that a small projection in Piston groove comes in the gap of Piston ring 38.
- Ring spring 8 and Piston pin 8 have to be installed into Piston through Needle cage 810 and Crank shaft from **Guide bar side.**
- Be sure to use **New** Gasket (**Fig. 10**) and **New** Crank case sealing.
- When replacing Ball bearing 6201, press-fit the inner ring portion to Crank shaft using the same size pipe and a block for placing the counterweights without bending.

After the above steps, reverse the disassembling procedure of "DISASSEMBLING of **[2]-11. Tank assembly**.

**Fig. 38**

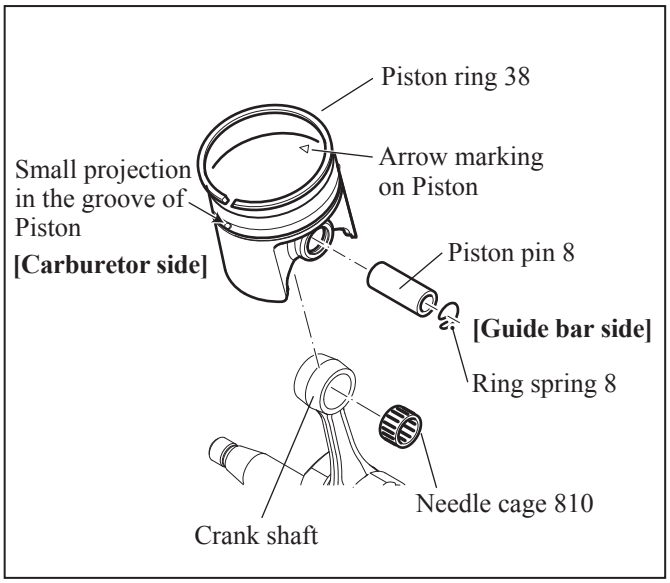
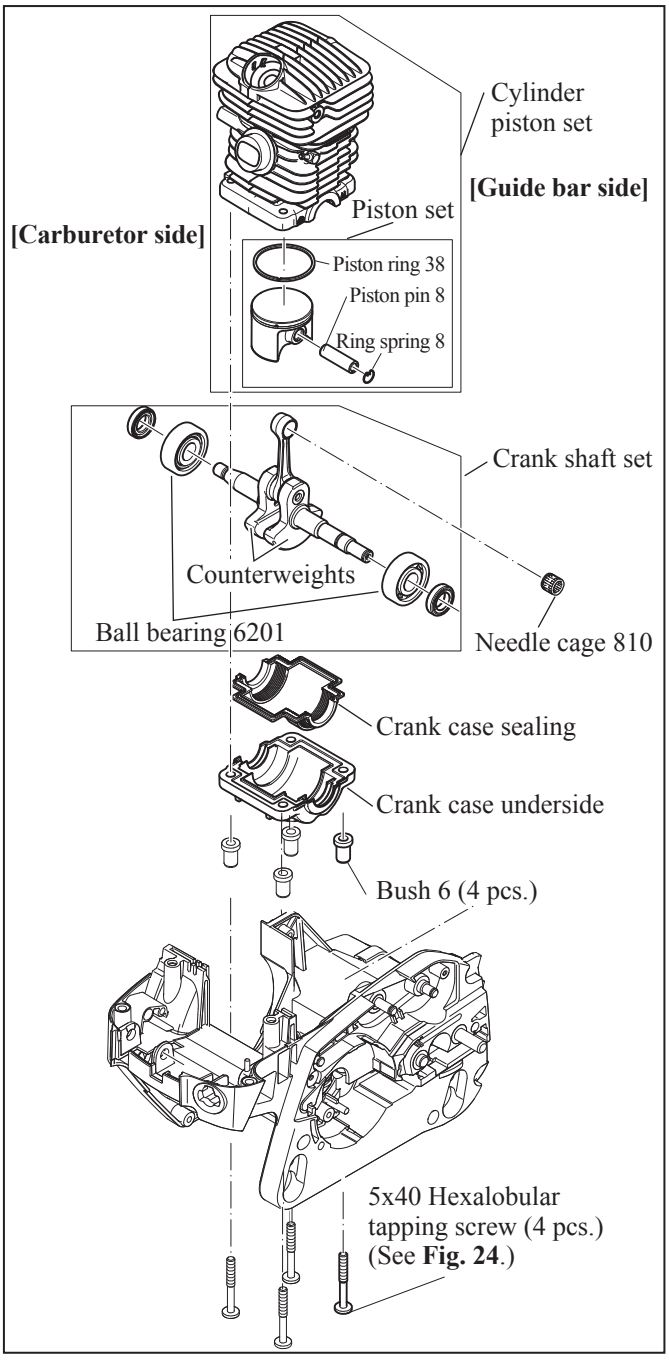



**Fig. 39**



| Fastening for | Part No. of Screw/ Bolt/ Clutch | Description | Quantity | Fastening torque (N.m.) |
|---|---|---|---|---|
| Crank case underside | 266608-2 | 5x40 Hexalobular tapping screw | 4 | 10 ± 0.5 |
| Intermediate flange | 266651-1 | 5.5x16 Hexalobular tapping screw | 2 | 4 ± 0.5 |
| Muffler base (the component of Muffler complete) | 266605-8 | M5x16 Hexalobular socket head bolt | 2 | 8 ± 1 |
| Muffler cover (the component of Muffler complete) and Cooling plate | 266605-8 | M5x16 Hexalobular socket head bolt | 2 | 8 ± 1 |
| | 266606-6 | M5x40 Hexalobular socket head bolt | 1 | 8 ± 1 |
| Carburetor | 266604-0 | M4x40 Hexalobular socket head bolt | 2 | 3 ± 0.5 |
| Clutch (M10 -1.0 thread pitch/ Left hand thread) | 168607-9 | Clutch complete | 1 | 35 ± 2.5 |
| Ignition coil assembly | 266631-7 | M5x20 Hexalobular socket head bolt | 2 | 5 ± 0.5 |
| Flywheel | 264053-5 | M8x1 Hex nut | 1 | 22.5 ± 2.5 |
| Tubular handle | 266651-1 | 5.5x16 Hexalobular tapping screw | 4 | 4 ± 0.5 |
| Spark plug | 168599-2/ 168401-9 | Spark plug | 1 | 11 ± 2 |
| Contact spring | 266421-8 | 3x10 Tapping screw | 1 | 1 ± 0.2 |